

### REMARKS

In the May 16, 2005 Office Action, claims 1-3, 5, 6, 11, 12, 17 and 20 stand rejected in view of prior art, while claims 7 and 8 stand rejected for failing to indicate and claim particularly and distinctly the subject matter that Applicants regard as the invention. Claims 9, 10, 13-16 and 19 were allowed and claim 18 was objected to, but indicated as containing allowable subject matter. Claims 7 and 8 were also indicated as containing allowable subject matter and would be allowed if amended to overcome the rejection 35 U.S.C. §112, second paragraph. No other objections or rejections were made in the Office Action.

### *Status of Claims and Amendments*

In response to the May 16, 2005 Office Action, Applicants have amended claims 1, 5-8, 11, 18 and 20 as indicated above and canceled claims 2-4. Claim 19 has been amended to correct a typographical error in this claim. Applicants wish to thank the Examiner for the indication of allowable subject matter and the thorough examination of this application. Thus, claims 1, 5-20 are pending, with claims 1, 9, 11, 15, 18, 19 and 20 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

### *Interview Summary*

On July 28, 2005, the undersigned conducted a telephonic interview with Examiner Woods, who is in charge of the above-identified patent application. Applicants wish to thank Examiner Woods for the opportunity to discuss the above-identified patent application during the interview of July 28, 2005.

During the interview, the Applicants' representative presented proposed amendments to independent claims 1, 11 and 20 as indicated above. Moreover, the proposed amendments

to independent claims 1, 11 and 20 included changing all the occurrence of the "vehicle" to the "road vehicle" in these claims as indicated above. The Applicants' representative asserted that the limitations now recited in independent claims 1 and 20 are not obvious over U.S. Patent Application Publication No. 2002/0186348 to Covannon et al. (hereinafter "Covannon et al. publication") in view of U.S. Patent No. 6,317,114 to Abali et al. (hereinafter "Abali et al. patent"), and the limitations now recited in independent claim 11 is not disclosed or suggested by the Abali et al. patent.

Specifically, regarding independent claims 1 and 20, Applicants' representative argued that these claims now clearly recite the claimed invention is used in a *road vehicle*, and shifting of a display position of the image is performed *to stabilize the image* within the display section to the viewer. Applicants' representative asserted neither the Covannon et al. publication nor the Abali et al. patent discloses the limitations now recited in independent claims 1 and 20. Examiner Woods indicated during the interview that the amendments to claims 1 and 20 may overcome the current prior art rejection based on the Covannon et al. publication and the Abali et al. patent. However, Examiner Woods asserted further consideration and further searching may be necessary to determine the patentability of amended claims 1 and 20.

Regarding independent claim 11, Applicants' representative asserted this claim, now amended, clearly requires the display control section configured to *stop using a center deviation* that is computed during periods of acceleration and deceleration of the road vehicle. Applicants' representative argued the Abali et al. patent *fails* to disclose or suggest stopping using a center deviation as now recited in claim 11. In response, Examiner Woods indicated the amendments to claim 11 would overcome the current prior art rejection based on the Abali et al. patent.

No agreement was reached on the allowability of the rejected claims. However, Examiner Woods asserted that this amendment raises a new issue that requires more consideration during the interview.

### ***Drawings***

In numbered paragraph 1 of the Office Action, the Office Action indicates that the revised drawings filed with the Applicants' March 3, 2005 Amendment were accepted.

### ***Specification***

In numbered paragraph 2 of the Office Action, the Office Action indicates the amendments to the specification proposed in the Applicants' March 3, 2005 Amendment were accepted.

### ***Entry of March 3, 2005 Amendment***

In numbered paragraphs 3 to 9 of the Office Action, the Office Action indicates that Applicants' March 3, 2005 Amendment has been entered.

Regarding the Applicants' arguments with respect to the revised drawings and amendments to the specification, the Office Action indicates the arguments have been fully considered and are persuasive. Thus, the objections to the drawings and the specification have been withdrawn.

In numbered paragraph 5 of the Office Action, the Office Action indicates most of the rejections have been rendered moot in view of the Applicants' amendments and arguments regarding the rejections to claims 3, 4-8, 9-14 and 19 under 35 U.S.C. §112. The Office Action indicates, regarding claims 9-14, that Applicants' arguments concerning the center deviation not being an essential element was found to be persuasive. Applicants wish to clarify the prior arguments in that this statement in the Office Action possibly causes an erroneous interpretation of the scope of these claims. Applicants did not assert in the March

3, 2005 Amendment that the center deviation is not an essential element in these claims as asserted in the Office Action. Rather, Applicants argued, with respect to the limitations recited in claims 9-14, that *the original position of the display section* (before the display section is moved) is not essential in performing the center deviation cancellation.

The Office Action indicates the rejection to claims 7 and 8 under 35 U.S.C. §112, second paragraph has not been withdrawn, and the Examiner maintained the original ground for rejection of these claims. More specifically, the Examiner asserted it is unclear from the recitation of claims 7 and 8 precisely which portions of the physique (e.g., weight, height, etc.) were being monitored or being claimed. The Examiner suggested either submitting a specific listing of the properties intended to be covered by this term and limiting claim scope to those factors, or amending claims to reflect a more concrete term to overcome the rejection under 35 U.S.C. §112, second paragraph.

Applicants' arguments with respect to the rejections of claims 1-9 and 13-20 under 35 U.S.C. §103(a) were found to be persuasive and the rejection was withdrawn. However, the Office Action indicates the Applicants' arguments are moot in view of the new grounds of rejection.

The Office Action asserts Applicants' arguments with respect to the rejection of claims 11 and 12 under 35 U.S.C. §103(a) are not persuasive. Thus, the Office Action maintains the original ground for rejecting claims 11 and 12.

#### ***Claim Rejections - 35 U.S.C. §112***

In numbered paragraph 6 of the Office Action, the Office Action indicates Applicants' arguments regarding the rejection to claims 7 and 8 under 35 U.S.C. §112, second paragraph are not persuasive and the original ground for the rejection was maintained, as mentioned above. The Examiner suggested either submitting a specific listing of the properties intended

to be covered by this term and limiting claim scope to those factors, or amending claims to reflect a more concrete term to overcome the rejection. In response, Applicants have amended claims 7 and 8 to clarify the term "physique" as required in the Office Action.

Specifically, claim 7 now recites the viewer motion value is determined by using at least one of *weight of the viewer, height of the viewer, mass of the viewer, shape of the viewer and a sitting posture of the viewer*. Likewise, claim 8 now recites selecting the response function of the vibration of the human body corresponds to at least one of *weight of the viewer, height of the viewer, mass of the viewer, shape of the viewer and a sitting posture of the viewer*.

Applicants believe that claims 7 and 8 now comply with 35 U.S.C. §112, second paragraph. Withdrawal of the rejections is respectfully requested.

#### ***Rejections - 35 U.S.C. § 103***

In numbered paragraphs 9-25 of the Office Action, claims 1-3, 5, 6, 11, 12, 17 and 20 stand rejected under 35 U.S.C. §103(a). More specifically, claims 1-3, 17 and 20 stand rejected as being unpatentable over the Covannon et al. publication in view of the Abali et al. patent. Claims 5 and 6 stand rejected over the Covannon et al. publication in view of the Abali et al. patent and further in view of U.S. Patent Application Publication No. 2002/0099257 to Parker et al. (hereinafter "Parker et al. publication"). Claims 11 and 12 stand rejected as being obvious over the Abali et al. patent alone.

#### **REJECTION BASED ON COVANNON ET AL. PUBLICATION AND ABALI ET AL. PATENT**

In numbered paragraphs 10-14 of the Office Action, claims 1-3, 17 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the Covannon et al. publication in view of the Abali et al. patent. In response, Applicants respectfully disagree with the assertion of the Office Action in that the limitations recited in claim 3 is rendered obvious by

the combination of the Covannon et al. publication and the Abali et al. patent. Thus, Applicants have amended independent claims 1 and 20 to recite the limitations substantially correspond to the limitations of claims 2 and 3, and cancelled claims 2 and 3 as mentioned above. Moreover, Applicants have amended all the occurrence of the "vehicle" in claims 1 and 20 to the "road vehicle" to clarify the type of vehicle in which the present invention is used.

More specifically, independent claims 1 and 20 now clearly recite that the claimed invention is used in a *road vehicle*, and the display position of the image is shifted by an amount based on the relative displacement *to stabilize the image* within the display section. Clearly this arrangement is *not* disclosed or suggested by the Covannon et al. publication, the Abali et al. patent or any other prior art of record.

First, Applicants assert one of ordinary skilled in the art would not combine the teaching of the Covannon et al. publication with the teaching of the Abali et al. patent to obtain the unique arrangement of the road vehicle display device as now recited in independent claims 1 and 20. More specifically, the Covannon et al. publication discloses an adaptive autostereoscopic display system, which is a large-scale system as seen in Figure 1 of the Covannon et al. publication. Thus, the system disclosed in the Covannon et al. publication requires a large space and platform to accommodate all the required components of the adaptive autostereoscopic display system. Moreover, the Covannon et al. publication is silent about installing the adaptive autostereoscopic display system in a moving environment. On the other hand, the display device disclosed in the Abali et al. patent does not require such a large platform as this reference states the display device can be installed in "moving vehicles, boats, airplanes, etc." (column 1, lines 15 to 19 of the Abali et al. patent). Thus, one of ordinary skilled in the art would not find it obvious to combine the large-scale

system disclosed in the Covannon et al. publication with the display device of the Abali et al. patent to obtain the road vehicle display device or method as now recited in claims 1 and 20 of the present invention.

Second, assuming for the sake of argument that the Covannon et al. publication and the Abali et al. patent were combinable, which is not, the combination of the Covannon et al. publication and the Abali et al. patent still fails to disclose or suggest the limitations of independent claims 1 and 20, now amended. More specifically, as mentioned above, independent claims 1 and 20 now clearly recite the display position of the image is shifted by an amount based on the relative displacement *to stabilize the image* within the display section.

As presented in Applicants' March 3, 2005 Amendment, the Abali et al. patent *fails* to disclose or suggest determining a viewer motion value indicative of the movement of a head portion of a viewer as recited in independent claims 1 and 20. Therefore, the Abali et al. patent also *fails* to disclose or suggest shifting a display position of the image based on a *relative displacement* between the display section and the head portion of the viewer to stabilize the image within the display section to the viewer as now recited in the independent claims 1 and 20.

The Covannon et al. publication is clearly cited in the Office Action to show using relative displacement between the display section and the head portion of the viewer to adjust the display position of the image. However, the Covannon et al. publication fails to provide for the deficiencies of the Abali et al. patent in that the Covannon et al. publication does *not* disclose or suggest shifting the display position of the image *to stabilize the image* within the display section to the viewer. More specifically, the Covannon et al. publication is directed to an autostereoscopic display system that utilizes pupil imaging system to display 3-D image

to the viewer. In the pupil imaging system utilized in the Covannon et al. publication, the viewer "whose eyes are coincident with the imaged pupils can view a stereoscopic scene without crosstalk, without wearing eyewear of any kind" (see paragraphs [0005] and [0094] of the Covannon et al. publication). Thus, in the Covannon et al. publication, the head portion (pupils) of the viewer is monitored and the variation in viewer's positioning and movement are adapted in displaying the image to the viewer in order to maintain pupil imaging (i.e., in order to display the image as a 3-D image to the viewer). In other words, in the Covannon et al. publication, the shifting of the display position of the image is performed to maintain the 3-D state of the image to the viewer, but *not to stabilize the image* as now recited in independent claims 1 and 20.

It is well settled in U.S. patent law that the mere fact that the prior art can be modified does *not* make the modification obvious, unless the prior art *suggests* the desirability of the modification. Accordingly, the prior art of record lacks any suggestion or expectation of success for combining the references to create the Applicants' unique arrangement of the road vehicle display device.

Accordingly, Applicants believe neither the Covannon et al. publication nor the Abali et al. patent renders independent claims 1 and 20 unpatentable under 35 U.S.C. §103(a), whether taken singularly or in combination.

Moreover, Applicants believe dependent claim 17 is also allowable over the prior art of record in that this claim depends from independent claim 1, and therefore is allowable for the reasons stated above. Also, the dependent claim 17 is further allowable because this claim includes additional limitations. Thus, Applicants believe that since the prior art of record does not disclose or suggest the invention as set forth in independent claim 1, the prior



art of record also fails to disclose or suggest the invention as set forth in the dependent claim 17.

REJECTION BASED ON COVANNON ET AL. PUBLICATION, ABALI ET AL. PATENT  
AND PARKER ET AL. PUBLICATION

In numbered paragraphs 18-20 of the Office Action, claims 5 and 6 stand rejected as being obvious over the Covannon et al. publication in view of the Abali et al. publication, and further in view of the Parker et al. publication. In response, Applicants have amended independent claim 1 as mentioned above.

As discussed above, Applicants believe the Covannon et al. publication and the Abali et al. publication, whether taken singularly or in combination, fail to render independent claim 1, now amended, obvious. Applicants respectfully assert the Parker et al. publication also fails to provide for the deficiencies of the Covannon et al. publication and the Abali et al. publication. As argued in the Applicants' March 3, 2005 Amendment, in both embodiments (head-mounted display and non-head mounted display) disclosed in the Parker et al. publication, the Parker et al. publication discloses detecting *only* the movement of platform (environment) to which the display device is coupled. Thus, the Parker et al. publication fails to disclose or suggest a road vehicle display device in which a display position of the image is shifted by an amount *based on the relative displacement* to stabilize the image within the display section as now recited in independent claim 1. Thus, claim 1 is allowable over the Covannon et al. publication, the Abali et al. patent, the Parker et al. publication or any other prior art of record.

Applicants believe dependent claims 5 and 6 are also allowable over the prior art of record in that they depend from independent claim 1, and therefore are allowable for the reasons stated above. Also, the dependent claims 5 and 6 are further allowable because they

include additional limitations. Thus, Applicants believe that since the prior art of record does not disclose or suggest the invention as set forth in independent claim 1, the prior art of record also fails to disclose or suggest the inventions as set forth in the dependent claims 5 and 6.

REJECTION BASED ON ABALI ET AL. PATENT

Claims 11 and 12 were rejected as being obvious over the Abali et al. patent. In response, Applicants have amended independent claim 11 as indicated above.

More specifically, independent claim 11 now clearly recites the display control section is configured to ***stop using a center deviation*** that is computed during periods of acceleration and deceleration of the road vehicle. Clearly, this arrangement is not disclosed or suggested by the Abali et al. patent or any other prior art of record.

According to the Abali et al. patent, the anti-biasing circuit is used to compensate ***for constant acceleration*** for an environment with ***long periods*** of relatively constant acceleration, such as aircraft avionics, naval vessels, etc. (see column 7, lines 53-56). From this description of the anti-biasing circuit, it can only be inferred that the anti-biasing circuit must continue to compute and update the re-centering amount, since the relatively constant acceleration occurs for long periods of time in aircrafts and naval vessels. In other words, the anti-biasing circuit may be used to ***correct*** the re-centering of the image only by an amount of displacement caused by the constant acceleration, because the anti-biasing circuit is used for compensating the displacement caused by the acceleration. The Abali et al. patent does not state that re-centering is stopped, but rather, when movement of the display section occurs from sources other than acceleration during a constant acceleration condition, the image is still shifted, and then re-centered, because the anti-biasing circuit would not compensate for the movement of the display section caused by the sources other than the constant

acceleration. Therefore, there will be a situation in the Abali et al. patent in which the center deviation is still computed and re-centering is performed even when the acceleration or deceleration is detected. Accordingly, the Abali et al. patent *fails* to disclose or suggest *stopping the computation of a center deviation* during periods of acceleration and deceleration of the road vehicle as now recited in claim 11. Thus, Applicants believe claim 11 is patentable over the Abali et al. patent.

Moreover, as mentioned above, the description of the anti-bias circuit in column 7, lines 53 to 56 of the Abali et al. patent merely mentions the anti-bias circuit is used for the relatively *constant acceleration in long term on aircrafts or naval vessels*. In general, the acceleration on the road vehicle is very different from those on the plane or ship because the road vehicle experiences acceleration in a rolling direction (curve) due to the accelerations in frontward, rearward, right and left directions. Also, since the road condition always changes at random, the motion of the road vehicle is very different from the motion of the plane or ship that is usually go up and down or rolls right and left in a constant frequency. In the claimed invention, the display position of the image is controlled based on the difference between the motion of the viewer and the motion of the road vehicle by detecting the acceleration of the road vehicle. Therefore, the claimed invention can respond to the random motion of the road vehicle and shift the display position of the image accordingly. Thus, Applicants believe the limitations as recited in independent claim 11 is not rendered obvious by the description of the anti-bias circuit in the Abali et al. patent, which is described as responding to a constant frequency. The environment in which the anti-bias circuit of the reference is used is very different from the environment of the road vehicle as now clearly recited in independent claim 11. Thus, one of ordinary skilled in the art would not find it obvious to modify the anti-bias circuit of the Abali et al. patent to obtain the unique

arrangement of the road vehicle display device as now recited in independent claim 11.

Accordingly, Applicants believe the Abali et al. patent does *not* render independent claim 11, as now amended, unpatentable under either 35 U.S.C. §102(b) or 35 U.S.C. §103(a).

In addition, Applicants believe that the dependent claim 12 is also allowable over the prior art of record in that this claim depends from independent claim 11, and therefore is allowable for the reasons stated above. Also, the dependent claim 12 is further allowable because this claim includes additional limitations. Thus, Applicants believe that since the prior art of record does not disclose or suggest the invention as set forth in independent claim 11, the prior art of record also fails to disclose or suggest the inventions as set forth in the dependent claim 12.

Furthermore, although claims 13 and 14 were indicated as being unpatentable over the Abali et al. patent in the numbered paragraphs 21, 24 and 25 of the Office Action, Applicants believe claims 13 and 14 should be allowed since these claims indirectly depend from claim 9, which is indicated as allowed. Claims 13 and 14 were also indicated as allowed in the numbered paragraph 26 of the Office Action.

Accordingly, Applicants respectfully request that the rejections be withdrawn in view of the above comments and amendments.

***Allowable Subject Matter***

In numbered paragraphs 26 and 27 of the Office Action, claims 9-10, 13-16 and 19 were indicated as allowed and claims 7, 8 and 18 were indicated as containing allowable subject matter. Applicants wish to thank the Examiner for this indication of allowable subject matter and the thorough examination of this application. In response, Applicants have amended claim 18 to place them in independent form. Thus, independent claim 18 is believed to be allowable.

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Amendment dated August 2, 2005  
Reply to Office Action of May 16, 2005

Regarding claims 7 and 8, Applicants have amended these claims to overcome the rejection under 35 U.S.C. §112, second paragraph as mentioned above. Applicants believe these claims are allowable over the prior art of record for the same reasons claim 1 is believed to be allowable since these claims indirectly depend from claim 1. Moreover, claims 7 and 8 are further allowable because they include additional limitations.

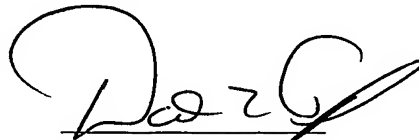
***Prior Art Citation***

In the Office Action, additional prior art references were made of record. Applicants believe that these references do not render the claimed invention obvious.

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In view of the foregoing amendment and comments, Applicants respectfully assert that claims 1 and 5-20 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,



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